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NEWS	20	APR 15	WPIDS, WPINDEX, and WPIX enhanced with new predefined hit display formats
NEWS	21	APR 28	EMBASE Controlled Term thesaurus enhanced
NEWS	22	APR 28	IMSRESEARCH reloaded with enhancements
NEWS	23	MAY 30	INPAFAMDB now available on STN for patent family searching
NEWS	24	MAY 30	DGENE, PCTGEN, and USGENE enhanced with new homology sequence search option
NEWS	25	JUN 06	EPFULL enhanced with 260,000 English abstracts
NEWS	26	JUN 06	KOREAPAT updated with 41,000 documents
NEWS	27	JUN 13	USPATFULL and USPAT2 updated with 11-character patent numbers for U.S. applications

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=> file uspatall caplus japio
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FILE 'USPATFULL' ENTERED AT 16:33:18 ON 15 JUN 2008
CA INDEXING COPYRIGHT (C) 2008 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'USPATOLD' ENTERED AT 16:33:18 ON 15 JUN 2008
CA INDEXING COPYRIGHT (C) 2008 AMERICAN CHEMICAL SOCIETY (ACS)

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FILE 'JAPIO' ENTERED AT 16:33:18 ON 15 JUN 2008
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=> s (recirculat? or circulat?)(6a)((polymeri? or reaction)(2a)zones)
L1         812 (RECIRCULAT? OR CIRCULAT?)(6A)((POLYMERI? OR REACTION)(2A) ZONES
               )

=> s (three or third)(5a)((polymeri? or reaction)(2a)zone#)
L2        2416 (THREE OR THIRD)(5A)((POLYMERI? OR REACTION)(2A) ZONE#)

=> s l1 and l2
L3         183 L1 AND L2

=> s fast(2a)(fluidi? or transport)
L4        4684 FAST(2A)(FLUIDI? OR TRANSPORT)

=> s l3 and l4
L5           9 L3 AND L4

=> d l5 1-9 ibib abs
```

L5 ANSWER 1 OF 9 USPATFULL on STN

ACCESSION NUMBER:	2006:68252 USPATFULL			
TITLE:	Polymerization process			
INVENTOR(S):	Covezzi, Massimo, Ferrara, ITALY Meier, Gerben, Frankfurt, GERMANY, FEDERAL REPUBLIC OF Mei, Gabriele, Ferrara, ITALY			
PATENT ASSIGNEE(S):	BASELL POLIOLEFINE ITALIA S.P.A., MILAN, ITALY (non-U.S. corporation)			
	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 20060058474	A1	20060316	
APPLICATION INFO.:	US 2003-530597	A1	20030925	(10)
	WO 2003-EP10717		20030925	
			20050407	PCT 371 date
	NUMBER		DATE	
PRIORITY INFORMATION:	EP 2002-79251		20021009	
	US 2002-418836P		20021015	(60)
DOCUMENT TYPE:	Utility			
FILE SEGMENT:	APPLICATION			
LEGAL REPRESENTATIVE:	BASELL USA INC., INTELLECTUAL PROPERTY, 912 APPLETON ROAD, ELKTON, MD, 21921, US			
NUMBER OF CLAIMS:	28			
EXEMPLARY CLAIM:	1			
NUMBER OF DRAWINGS:	5 Drawing Page(s)			
LINE COUNT:	1099			

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Process for the gas-phase catalytic polymerization of olefins carried out in a plurality of interconnected polymerization zones, the process comprising feeding one or more monomers to said polymerization zones in the presence of a catalyst under reaction conditions and collecting the polymer product from said polymerization zones, in which process the polymer particles grow within a first polymerization zone where a fluidized bed is formed, at least a part of said polymer particles leave said first polymerization zone to enter a second polymerization zone through which they flow downward, leave said second polymerization zone and enter a third polymerization zone through which they flow upward under fast fluidization or transport conditions, leave said third polymerization zone and are reintroduced into the first polymerization zone, thus establishing a circulation of polymer between the different polymerization zones.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 2 OF 9 USPATFULL on STN

ACCESSION NUMBER:	2005:125261 USPATFULL			
TITLE:	Controlling the ratio of ethylene to propylene produced in an oxygenate to olefin conversion process			
INVENTOR(S):	Sher, Jaimes, Houston, TX, UNITED STATES Van Egmond, Cornelis, Pasadena, TX, UNITED STATES			
	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 20050107651	A1	20050519	
	US 7199276	B2	20070403	

APPLICATION INFO.: US 2003-717006 A1 20031119 (10)
DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: EXXONMOBIL CHEMICAL COMPANY, 5200 BAYWAY DRIVE, P.O. BOX 2149, BAYTOWN, TX, 77522-2149, US
NUMBER OF CLAIMS: 74
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 5 Drawing Page(s)
LINE COUNT: 3098
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention provides various processes for producing methanol and ethanol, preferably in a mixed alcohol stream. In one embodiment, the invention includes directing syngas to a synthesis zone wherein the syngas contacts a methanol synthesis catalyst and an ethanol synthesis catalyst (either a homologation catalyst or a fuel alcohol synthesis catalyst) under conditions effective to form methanol and ethanol. The methanol and ethanol, in a desired ratio, are directed to an oxygenate to olefin reaction system for conversion thereof to ethylene and propylene in a desired ratio. The invention also relates to processes for varying the weight ratio of ethylene to propylene formed in an oxygenate to olefin reaction system.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 3 OF 9 USPATFULL on STN
ACCESSION NUMBER: 2005:125091 USPATFULL
TITLE: Methanol and fuel alcohol production for an oxygenate to olefin reaction system
INVENTOR(S): Janssen, Marcel Johannes, Kessel-Lo, BELGIUM
Van Egmond, Cornelis F., Pasadena, TX, UNITED STATES
Martens, Luc R.M., Meise, BELGIUM
Sher, Jaimes, Houston, TX, UNITED STATES

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 20050107481	A1	20050519	
	US 7288689	B2	20071030	
APPLICATION INFO.:	US 2003-716685	A1	20031119	(10)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: EXXONMOBIL CHEMICAL COMPANY, 5200 BAYWAY DRIVE, P.O. BOX 2149, BAYTOWN, TX, 77522-2149, US
NUMBER OF CLAIMS: 93
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 3 Drawing Page(s)
LINE COUNT: 2356
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention provides various processes for producing C1 to C4 alcohols, optionally in a mixed alcohol stream, and optionally converting the alcohols to light olefins. In one embodiment, the invention includes directing a first portion of a syngas stream to a methanol synthesis zone wherein methanol is synthesized. A second portion of the syngas stream is directed to a fuel alcohol synthesis zone wherein fuel alcohol is synthesized. The methanol and at least a portion of the fuel alcohol are directed to an oxygenate to olefin reaction system for conversion thereof to ethylene and propylene.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 4 OF 9 USPATFULL on STN

ACCESSION NUMBER: 91:44895 USPATFULL
TITLE: Vapor phase catalytic oxidation of butane to maleic anhydride
INVENTOR(S): Contractor, Rashmikant M., Wilmington, DE, United States
PATENT ASSIGNEE(S): E.I. Du Pont de Nemours and Company, Wilmington, DE, United States (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5021588		19910604
APPLICATION INFO.:	US 1988-236743		19880826 (7)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1987-17181, filed on 20 Feb 1987, now abandoned which is a continuation-in-part of Ser. No. US 1985-692474, filed on 18 Jan 1985, now patented, Pat. No. US 4668802, issued on 26 May 1987
DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Lee, Mary C.
ASSISTANT EXAMINER: Dentz, Bernard I.
NUMBER OF CLAIMS: 5
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 4 Drawing Figure(s); 4 Drawing Page(s)
LINE COUNT: 1047
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The oxidation of butane to maleic anhydride in a recirculating solids reactor using a stoichiometric excess of oxygen, a vanadium-phosphorus oxide catalyst in oxidized form, and separate regeneration of the resultant reduced catalyst is disclosed.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 5 OF 9 USPATFULL on STN
ACCESSION NUMBER: 87:38106 USPATFULL
TITLE: Improved vapor phase catalytic oxidation of butane to maleic anhydride
INVENTOR(S): Contractor, Rashmikant M., Wilmington, DE, United States
PATENT ASSIGNEE(S): E. I. Du Pont de Nemours and Company, Wilmington, DE, United States (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 4668802		19870526
APPLICATION INFO.:	US 1985-692474		19850118 (6)

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Ford, John M.
ASSISTANT EXAMINER: Dentz, Bernard I.
NUMBER OF CLAIMS: 7
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 4 Drawing Figure(s); 4 Drawing Page(s)
LINE COUNT: 908
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Oxidation of butane to maleic anhydride using a vanadium-phosphorus oxide catalyst, in oxidized form, wherein the resulting reduced catalyst is separately regenerated. A recirculating solids reactor can be employed. Less than the stoichiometric amount of oxygen, based on the total amount of butane converted, can be employed.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 6 OF 9 USPATFULL on STN

ACCESSION NUMBER:	80:7888 USPATFULL		
TITLE:	Process for purification of sanitary waters		
INVENTOR(S):	Besik, Ferdinand, 3243 Chokecherry Crs., Mississauga, Ontario, Canada L5L 1B1		
	NUMBER	KIND	DATE
PATENT INFORMATION:	US 4188289		19800212
APPLICATION INFO.:	US 1978-918051		19780718 (5)
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	Granted		
PRIMARY EXAMINER:	Hart, Charles N.		
ASSISTANT EXAMINER:	Therkorn, Ernest G.		
NUMBER OF CLAIMS:	4		
EXEMPLARY CLAIM:	1		
NUMBER OF DRAWINGS:	3 Drawing Figure(s); 3 Drawing Page(s)		
LINE COUNT:	641		

AB A purification process for removal of suspended solids, carbonaceous material, nitrogenous material, phosphorus, refractory organics, bacteria and viruses comprises of combining and carrying out the various biochemical and chemical reactions and separation of the suspended solids in a single sludge system in a simplified process sequence suitable for use in a single reaction tank.

The biooxidation, nitrification, denitrification and chemical precipitation processes are carried out in presence of mixed microbial population entrapped into fluidized nonbiodegradable suspended solids with portion of the fluidized suspended solids circulating through three reaction zones having varying concentration of disolved oxygen to maintain environmental conditions to support growth of the microbial population and simultaneously to maintain operating conditions required to carry out the involved reactions.

The fluidized suspended solids entrap the active microorganisms, colloidal matter and suspended solids present in the incoming waste water and/or generated during purification of the waste water, improve the settling properties of the resulting sludge and enhance separation of suspended solids from the purified waste water.

The concentration of the active microbial population in this purification process is significantly higher than that achieved by the prior art processes resulting in better performance, more efficient removal of pollutants and reduced treatment costs. The followed chemical oxidation provides for removal of remaining impurities and killing of bacteria and viruses.

L5 ANSWER 7 OF 9 USPAT2 on STN

ACCESSION NUMBER:	2005:125261 USPAT2
TITLE:	Controlling the ratio of ethylene to propylene produced in an oxygenate to olefin conversion process
INVENTOR(S):	Sher, Jaimes, Houston, TX, UNITED STATES Van Egmond, Cornelis F., Pasadena, TX, UNITED STATES Martens, Luc R. M., Meise, BELGIUM Janssen, Mechilium Johannes, Kessel-Lo, BELGIUM

Lattner, James R., Seabrook, TX, UNITED STATES
Xu, Teng, Houston, TX, UNITED STATES
PATENT ASSIGNEE(S): ExxonMobil Chemical Patents Inc., Houston, TX, UNITED STATES (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 7199276	B2	20070403	
APPLICATION INFO.:	US 2003-717006		20031119	(10)

DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: Caldarola, Glenn
ASSISTANT EXAMINER: Bullock, In Suk
NUMBER OF CLAIMS: 23
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 5 Drawing Figure(s); 5 Drawing Page(s)
LINE COUNT: 2940
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention provides various processes for producing methanol and ethanol, preferably in a mixed alcohol stream. In one embodiment, the invention includes directing syngas to a synthesis zone wherein the syngas contacts a methanol synthesis catalyst and an ethanol synthesis catalyst (either a homologation catalyst or a fuel alcohol synthesis catalyst) under conditions effective to form methanol and ethanol. The methanol and ethanol, in a desired ratio, are directed to an oxygenate to olefin reaction system for conversion thereof to ethylene and propylene in a desired ratio. The invention also relates to processes for varying the weight ratio of ethylene to propylene formed in an oxygenate to olefin reaction system.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 8 OF 9 USPAT2 on STN
ACCESSION NUMBER: 2005:125091 USPAT2
TITLE: Methanol and fuel alcohol production for an oxygenate to olefin reaction system
INVENTOR(S): Janssen, Marcel Johannes, Kessel-Lo, BELGIUM
Van Egmond, Cornelis F., Pasadena, TX, UNITED STATES
Martens, Luc R. M., Meise, BELGIUM
Sher, Jaimes, Houston, TX, UNITED STATES
PATENT ASSIGNEE(S): ExxonMobil Chemical Patents Inc., Houston, TX, UNITED STATES (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 7288689	B2	20071030	
APPLICATION INFO.:	US 2003-716685		20031119	(10)

DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: Caldarola, Glenn
ASSISTANT EXAMINER: Bullock, In Suk
LEGAL REPRESENTATIVE: Weisberg, David M.
NUMBER OF CLAIMS: 47
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 3 Drawing Figure(s); 3 Drawing Page(s)
LINE COUNT: 2202
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention provides various processes for producing C1 to C4 alcohols, optionally in a mixed alcohol stream, and optionally converting the alcohols to light olefins. In one embodiment, the

invention includes directing a first portion of a syngas stream to a methanol synthesis zone wherein methanol is synthesized. A second portion of the syngas stream is directed to a fuel alcohol synthesis zone wherein fuel alcohol is synthesized. The methanol and at least a portion of the fuel alcohol are directed to an oxygenate to olefin reaction system for conversion thereof to ethylene and propylene.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 9 OF 9 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:333754 CAPLUS
DOCUMENT NUMBER: 140:321932
TITLE: Polymerization process
INVENTOR(S): Covezzi, Massimo; Meier, Gerben; Mei, Gabriele
PATENT ASSIGNEE(S): Basell Poliolefine Italia S.P.A., Italy
SOURCE: PCT Int. Appl., 36 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004033505	A1	20040422	WO 2003-EP10717	20030925
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003271648	A1	20040504	AU 2003-271648	20030925
EP 1549687	A1	20050706	EP 2003-753465	20030925
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
CN 1688618	A	20051026	CN 2003-824043	20030925
JP 2006502263	T	20060119	JP 2004-542372	20030925
US 20060058474	A1	20060316	US 2005-530597	20050407

PRIORITY APPLN. INFO.:			
EP 2002-79251	A	20021009	
US 2002-418836P	P	20021015	
WO 2003-EP10717	W	20030925	

AB Process for the gas-phase catalytic polymerization of olefins is carried out in a plurality of interconnected polymerization zones to manufacture polyolefins with broad mol.-weight distribution and high homogeneity. The process comprises feeding one or more monomers to said polymerization zones in the presence of a catalyst under reaction conditions and collecting the polymer product from said polymerization zones, in which process the polymer particles grow within a first polymerization zone where a fluidized bed is formed, at least a part of said polymer particles leave said first polymerization zone to enter a second polymerization zone through which they flow downward, leave said second polymerization zone and enter a third polymerization zone through which they flow upward under fast fluidization

or transport conditions, leave said third polymerization zone and are reintroduced into the first polymerization zone, thus establishing a circulation of polymer between the different polymerization zones.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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L5 ANSWER 7 OF 9 USPAT2 on STN

ACCESSION NUMBER: 2005:125261 USPAT2

TITLE: Controlling the ratio of ethylene to propylene produced in an oxygenate to olefin conversion process

INVENTOR(S): Sher, Jaimes, Houston, TX, UNITED STATES
Van Egmond, Cornelis F., Pasadena, TX, UNITED STATES
Martens, Luc R. M., Meise, BELGIUM
Janssen, Mechilium Johannes, Kessel-Lo, BELGIUM
Lattner, James R., Seabrook, TX, UNITED STATES
Xu, Teng, Houston, TX, UNITED STATES

PATENT ASSIGNEE(S): ExxonMobil Chemical Patents Inc., Houston, TX, UNITED STATES (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 7199276	B2	20070403	
APPLICATION INFO.:	US 2003-717006		20031119	(10)

DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: Caldarola, Glenn
ASSISTANT EXAMINER: Bullock, In Suk
NUMBER OF CLAIMS: 23
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 5 Drawing Figure(s); 5 Drawing Page(s)
LINE COUNT: 2940
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

SUMM In another embodiment, the invention is to a process for producing light olefins from methanol and ethanol formed in separate synthesis zones. The process includes a step of contacting a first amount of a first syngas stream comprising carbon monoxide, carbon dioxide and hydrogen with a methanol synthesis catalyst in a first synthesis zone under first conditions effective to form a methanol-containing stream comprising methanol. A second amount of a second syngas stream comprising carbon monoxide, carbon dioxide and hydrogen contacts an ethanol synthesis catalyst in a second synthesis zone under second conditions effective to form an ethanol-containing stream comprising ethanol. At least a portion of the methanol-containing stream is combined with at least a portion of the ethanol-containing stream to form a combined stream having a first methanol to ethanol weight ratio. At least a portion of the combined stream contacts a molecular sieve catalyst composition in a reaction zone under third conditions effective to convert the methanol and ethanol to light olefins comprising ethylene and propylene. The second amount optionally can be varied in order to change the first methanol to ethanol weight ratio to a second methanol to ethanol weight ratio, which can be greater than or less than the first methanol to ethanol weight ratio. In this embodiment, the process optionally includes a step of contacting a natural gas stream with oxygen in a syngas generation zone under conditions effective to convert the natural gas stream into an initial syngas stream, and separating the initial syngas stream into the first

syngas stream and the second syngas stream.

DETD The reaction processes can take place in a variety of catalytic reactors such as hybrid reactors that have a dense bed or fixed bed reaction zones and/or fast fluidized bed reaction zones coupled together, circulating fluidized bed reactors, riser reactors, and the like. Suitable conventional reactor types are described in for example U.S. Pat. No. 4,076,796, U.S. Pat. No. 6,287,522 (dual riser), and Fluidization Engineering, D. Kunii and O. Levenspiel, Robert E. Krieger Publishing Company, New York, N.Y. 1977, which are all herein fully incorporated by reference.

DETD The preferred reactor type are riser reactors generally described in Riser Reactor, Fluidization and Fluid-Particle Systems, pages 48 to 59, F. A. Zenz and D. F. Othmer, Reinhold Publishing Corporation, New York, 1960, and U.S. Pat. No. 6,166,282 (fast-fluidized bed reactor), and U.S. patent application Ser. No. 09/564,613 filed May 4, 2000 (multiple riser reactor), which are all herein fully incorporated by reference.

DETD In this embodiment, at least a portion of the combined stream contacts a molecular sieve catalyst composition in a reaction zone under third conditions effective to convert the methanol and ethanol to light olefins comprising ethylene and propylene. The second amount optionally can be varied in order to change the first methanol to ethanol weight ratio to a second methanol to ethanol weight ratio, which also can be greater than or less than the first methanol to ethanol weight ratio.

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L5 ANSWER 4 OF 9 USPATFULL on STN

ACCESSION NUMBER:	91:44895 USPATFULL
TITLE:	Vapor phase catalytic oxidation of butane to maleic anhydride
INVENTOR(S):	Contractor, Rashmikant M., Wilmington, DE, United States
PATENT ASSIGNEE(S):	E.I. Du Pont de Nemours and Company, Wilmington, DE, United States (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5021588		19910604
APPLICATION INFO.:	US 1988-236743		19880826 (7)

RELATED APPLN. INFO.:	Continuation-in-part of Ser. No. US 1987-17181, filed on 20 Feb 1987, now abandoned which is a continuation-in-part of Ser. No. US 1985-692474, filed on 18 Jan 1985, now patented, Pat. No. US 4668802, issued on 26 May 1987
DOCUMENT TYPE:	Utility
FILE SEGMENT:	Granted
PRIMARY EXAMINER:	Lee, Mary C.
ASSISTANT EXAMINER:	Dentz, Bernard I.
NUMBER OF CLAIMS:	5
EXEMPLARY CLAIM:	1
NUMBER OF DRAWINGS:	4 Drawing Figure(s); 4 Drawing Page(s)
LINE COUNT:	1047

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

SUMM A recirculating solids reactor has two reaction zones, in which two separate reactions take place, and a catalyst (the solid) which circulates between the two

reaction zones and takes part in both reactions. Such reactor systems have found use in catalytic cracking in petroleum refining and in other reactions. U.S. Pat. No. 4,102,914 discloses a process for the preparation of acrylonitrile by passing a gaseous mixture comprising propylene, ammonia and molecular oxygen and an ammoxidation catalyst through a reaction zone while controlling the superficial linear gas velocity and solids feeds rate to achieve a state of fast fluidization. In a preferred embodiment the lower part of the reactor serves as a regeneration zone and recycled catalyst from the separator is contacted with molecular oxygen prior to the addition of ammonia and propylene. U.S. Pat. No. 4,261,899 discloses a process for preparing phthalic anhydride by oxidizing o-xylene with air (oxygen) in a dilute phase transported bed reactor. Substantially all of the o-xylene is introduced at one end of the reactor while oxygen necessary for the reaction and fluidized catalyst are introduced at a plurality of spaced inlets along the reactor. The catalyst is separated from the product gases and recycled. European Patent Office Publication No. 0 034 442 discloses a process for preparing unsaturated aldehydes (or unsaturated acids) by passing an unsaturated olefin (or unsaturated aldehyde) and oxygen into a transport line reactor with a solid oxidation catalyst to achieve substantially plug flow within the reactor. Reaction products are stripped from the catalyst with steam in the stripper chamber.

DETD The results for the recirculating solids reactors show that conversion increases as the amount of n-butane in the feed decreases and increases with increase in: a) the mol % of oxygen in the feed, b) the gas residence time in the reaction zone, and c) the reaction zone temperature. However, at a constant reaction temperature the effect of the mol % n-butane in the feed and the gas residence time in the reaction zone on the conversion versus selectivity relationship was smaller than the scatter in the data. Thus, a change in the mol % of n-butane in the feed over the range 1 to 50% did not affect the selectivity at any constant conversion achieved by adjusting other process variables. Similarly, the use of three different reaction zone configurations, two different regeneration zone configurations, and several different gas residence times did not significantly affect the conversion versus selectivity relationship. About half of these experiments were carried out using no gas phase oxygen in the reaction zone and about half were carried out using 8 mol % oxygen in the feed gas. The experiments carried out with no gas phase oxygen in the reaction zone generally showed somewhat higher selectivities at a given conversion. An increase in reaction temperature resulted in a decrease in selectivity at a given conversion. The selectivities in the experiments carried out in the conventional fluidized bed reactor were significantly lower than those achieved in the recirculating solids reactors.

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                 REACTION)(2A) ZONE#)
L3           183 SEA ABB=ON  PLU=ON  L1 AND L2
L4          4684 SEA ABB=ON  PLU=ON  FAST(2A)(FLUIDI? OR TRANSPORT)
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